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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/825,473	04/03/2001	Michael V. Glazov	99-2051	2114

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EXAMINER
NGUYEN, CAM N

ART UNIT	PAPER NUMBER
1754	7

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/825,473	Glazov et al.
Examiner	**Art Unit**
Cam Nguyen	1754

-- The MAILING DATE of this communicati n appears on the c ver sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *three* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *10/03/02 (amendment/response)* .

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under ***Ex parte Quayle***, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-13* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. Applicants' remarks and amendment, filed on October 3, 2002, have been carefully considered. Claims 14-16 have been canceled.

Claims 1-13 remain pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamano et al., "hereinafter Hamano", (U.S Pat. 5,155,085) *taken together with* Warthen et al., "hereinafter Warthen", (U.S Pat. 3,853,789) *and in combination with* Inui et al., "hereinafter Inui", (U.S Pat. 5,573,582).

Hamano discloses a process of preparing transition alumina by forming a solution by dissolving aluminum sulfate and a lanthanum sulfate in water at a temperature of 90°C for 1 hour with stirring; heating the solution to evaporate the water; then further heating to dryness at a temperature of 180°C for 10 hours; and finally calcining and thermally decomposing at a

temperature of 1000°C for 15 hours to produce transition alumina having a γ-alumina phase (see col. 8, Example 1, ln 44-63).

Regarding step 1(a) & step 6(a), the claims are met since Hamano teaches to dissolve aluminum sulfate and lanthanum sulfate in water (see col. 8, Example 1, ln 44-63), which provides for an aqueous solution containing aluminum sulfate and lanthanum sulfate.

Hamano does not disclose step 1(b) & step 6(b), which recite "treating the aluminum solution with a hydroxyl group anion-exchanger to produce a composition comprising aluminum hydroxide". However, it would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have treated the aqueous solution containing aluminum and lanthanum of Hamano with an alkaline reagent in order to form an aluminum hydroxide and lanthanum hydroxide precipitation having a pH value in the range of between 6 to 11, preferably in the range of between 7.5 and 8.5, with a reasonable success of achieving the transition alumina powders because it is known and taught by Warthen to do so to obtain an improved alumina product having high mechanical strength and attrition resistance, and high degree of macroporosity which is useful as adsorbents or catalyst carriers (see Warthen at col. 2, ln 18-26, col. 1, ln 6-8, & ln 48-52).

Hamano does not disclose step 1(c) & 6(c), which recite "freeze-drying the aluminum hydroxide composition to produce a aluminum hydroxide powder". It would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have incorporated this step into the process of Hamano in order to obtain fine-particulate metal

hydroxide comprising aluminum hydroxide because Inui fairly discloses freeze-drying technique is a suitable drying technique for producing fine-particulate aluminum hydroxide (see Inui at col. 8, ln 7, ln 20-41, col. 2, ln 16-47).

With respect to step 1(d) & 6(d), Inui discloses calcining the aluminum hydroxide at a temperature of about 500°C to about 1500°C to obtain fine-particulate metal oxide comprising γ-phase containing aluminum oxide (or alumina) as a major component (see Inui at col. 8, ln 21-29). The fine-particulate also contains at least one other component selected from a group including La (see Inui at col. 8, ln 30-34). The calcining step disclosed by Inui provides for the "dehydrating" step set forth in the instant claims, thus meet the claims.

Regarding claims 2, 7, & 8, the claims are met by the reference since Hamano discloses aluminum nitrate and lanthanum nitrate are also suitable as aluminum salt and lanthanide series element salt other than the aluminum and lanthanum sulfate (see Hamano at col. 4, ln 31 & ln 41).

Regarding claims 3 & 9-11, Hamano does not disclose the claimed aluminum nitrate amount, aluminum to lanthanum molar ratios, and concentration of lanthanum oxide in the γ-alumina. It would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have optimized the aluminum and lanthanum concentrations in such process in order to obtain a more effective alumina material, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, see *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 4 & 12, the claimed pH range is met by the teaching of the reference because the claimed pH range is overlapping with the disclosed pH range (see Warthen at col. 2, ln 18-26).

With respect to the claimed calcination temperature range in claims 5 & 13, it is met by the teaching of the reference since the claimed range falls within the disclosed temperature range (see Inui at col. 8, ln 21-29).

With respect to the cooling step in claims 5 & 13, Inui does not disclose cooling of the alumina product. However, it is *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have incorporated the cooling step in such process in view of the advantage that cooling of a product to facilitate subsequent handling of the product material. This is conventional and known in the metal oxide production art.

Response to Arguments

4. Applicants' amendment/response has been carefully considered, but deemed not persuasive for the following reasons.

First, applicants' urging on the Hamano reference for not disclosing two features recited in the instant claims, which is the anion exchanger of step(b) and the freeze-drying of step(c), is also noted. It should be noted that the rejection made is based on a combination of the references together, not individually. Therefore, applicants' urging is not found persuasive.

Second, applicants' urging on the Hamano reference for not teaching the claimed La concentration is noted. It appears that the independent claims 1 and 6 do not require specific La concentration, and that the specific La concentrations are only recited in claims 9-11.

Third, with respect to the Warthen reference, applicants urged that "there is no specific teaching to use a hydroxyl group anion-exchanger. Moreover, there is no description of an intermediate hydroxide product (or aluminum hydroxide) as required in the claimed invention. In the absence of some teaching to even produce a hydroxide, there can be no motivation to use a hydroxide anion-exchanger". Reviewed of the Warthen reference at col. 2, ln 18-36, there is a clear teaching that precipitating a hydrous alumina gel (or aluminum hydroxide gel) from solution by precipitating an acid aluminum salt solution with an addition of an alkaline reagent, the alumina powders are obtained. Thus, applicant's urging is not found persuasive.

Fourth, applicants further urging on the Warthen reference for not considering the La concentration and other features of the claimed invention is also noted, but not found persuasive because the rejection made was based on a combination of the references together, not individually.

Fifth, applicants urged, that "the Inui reference lists freeze drying as one of eight classes of drying techniques, but the patent only considers pneumatic conveying drying (or a hot-air transferring drying) and flash drying as two suitable techniques of the eight potential choices for drying a slurry of aluminum hydroxide. The patent does not state that freeze drying is a viable

alternative to the two techniques specifically disclosed... There is no motivation provided for substituting some other drying techiques (i.e., freeze-drying) for the only two techniques described as useful in solid-liquid separation on an aluminum hydroxide slurry". This is noted, but not found persuasive. It is considered since the reference discloses that freeze-drying technique is suitable for performing a similar process, and with a reasonable success of obtaining a similar product, provides one of ordinary skill in the art the motivation to combine the teaching of the secondary reference with the primary reference.

It is the examiner's position to conclude the combination of the references is proper, thus the rejection made is maintained.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

6. Claims 1-13 are pending. Claims 1-13 are rejected. No claims are allowed.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Cam Nguyen, whose telephone number is (703) 305-3923. The examiner can normally be reached on M-F from 8:30 am. to 6:00 pm, with alternative Monday off.

The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 (before finals) and (703) 872-9311 (after-final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Nguyen/cnn CNN
December 12, 2002

Cam Nguyen
Patent Examiner

Stanley S. Silverman
Supervisory Patent Examiner
Technology Center 1700